The Bulletins are published weekly throughout the school year (thirty issues) to aid teachers and students in keeping abreast of geography behind current news events.

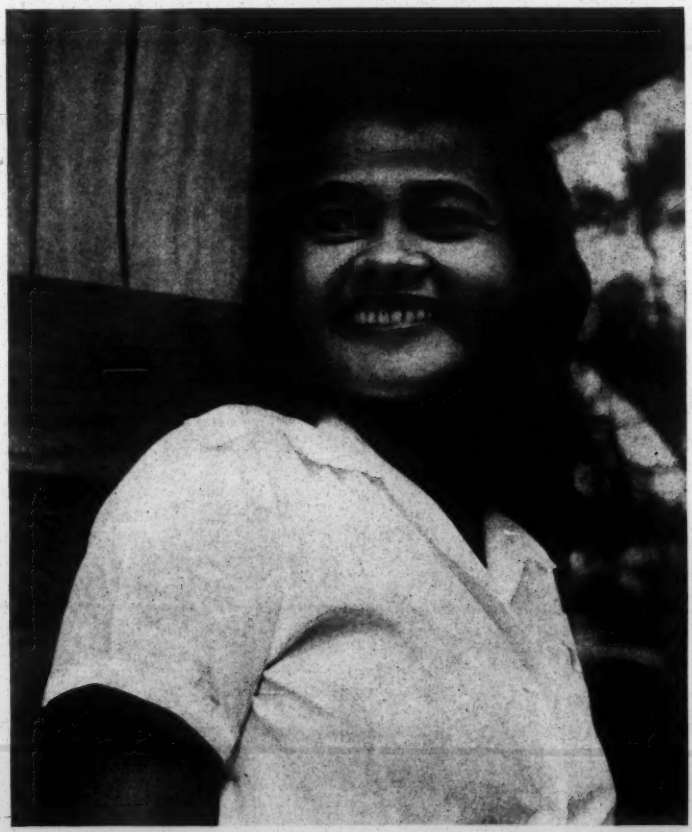
GEOGRAPHIC SCHOOL BULLETINS

of
The National Geographic Society
WASHINGTON 6, D. C.

The National Geographic Society is a non-profit educational and scientific Society established for the increase of geographic knowledge and its popular diffusion.

VOLUME XXVII November 29, 1948 NUMBER 9

1. Memorial Research Starts on Pacific Isles Aikman - Atwater
2. Deserts Form Dry Belt Around Third of Earth Gray
3. Lincoln's Gettysburg Address 85 Years Old Hooper
4. Spiders Fly on Magic Carpets of Gossamer Hooper
5. Afghanistan Gradually Discards Isolation Aikman - Gray



W. ROBERT MOORE

SAIPAN, THIS CHAMORRO GIRL'S PACIFIC HOME, WILL BE A GUINEA-PIG ISLAND FOR NEW SCIENTIFIC STUDY (Bulletin No. 1)

LIMI

Bulletin No. 1, November 29, 1948

Memorial Research Starts on Pacific Isles

FROM battleground to laboratory for mankind's benefit is the jump in store for the two Pacific islands of Koror and Saipan. Because of special features, they have been chosen as sites for the first field stations of the scientific foundation known as the Pacific War Memorial.

The islands of Micronesia (map, next page), ruled by Japan after World War I, are now a United Nations trusteeship. They are governed by the United States, whose forces took them over in wartime island-hopping operations. The United States Navy administers them.

Koror and Saipan to Have First Stations

The Pacific War Memorial was formed in 1946 by veterans of the war in the Pacific. They believed that an organization to secure useful scientific knowledge about the islands and their peoples would be a more worthy monument than a traditional one of carved stone. One hundred and twelve thousand men lost their lives in the Pacific fighting.

Two scientists made a survey of the islands. With Navy cooperation, they chose Koror and Saipan as starting points.

Koror, where the first station is being established, lies in the Palau group, westernmost cluster of Micronesia. It was the capital of Japan's island empire of the mid-Pacific, an important naval base, and a shipping center for bauxite and phosphate.

Although the three-square-mile island and its town of the same name suffered little war damage, only about 1,000 people remain of the prewar 20,000. About 60 are Americans, members of the government and their families, and business men.

Koror was selected as the site of the first Memorial station because it had an unusual variety of plant and animal life. The unit will be set up in a one-story concrete building, relic of the Japanese era.

Saipan Saw Heavy Fighting

Saipan, chief island of the Marianas, is about 900 miles northeast of Koror. Its 90 square miles had been turned into a vast plantation producing $6,000,000 worth of sugar a year for the Japanese.

Saipan saw severe ground fighting, particularly in the "Hell's Pocket" ravine of Mt. Tapotchau. Part of this 1,554-foot mountain's top has been set aside for the use of the Memorial. A second station on Saipan will be established on the shores of Lake Susupe, a short distance from Charan Kanoa where the Marines landed in 1944. In spite of heavy fighting, this spot—a haven for rare birds—was almost untouched.

Saipan is also an excellent laboratory for the study of tropical diseases. It should be a great boon to scientists if their research can reveal why Saipan, unlike Guadalcanal, has no malaria.

The close of World War II found about 13,000 Japanese civilians on Saipan. Most of them had been brought to work in the sugar-cane fields and sugar mills. These Japanese have now been repatriated. About 5,000

ENTERED AS SECOND-CLASS MATTER APRIL 27, 1943, POST OFFICE, WASHINGTON, D. C., UNDER ACT OF MARCH 3, 1879.
COPYRIGHT, 1948, BY THE NATIONAL GEOGRAPHIC SOCIETY. INTERNATIONAL COPYRIGHT SECURED. ALL RIGHTS RESERVED.
SUBSCRIPTION TWENTY-FIVE CENTS FOR THIRTY WEEKLY ISSUES DURING THE SCHOOL YEAR. IN CANADA, FIFTY CENTS.

UMI

MAYNARD OWEN WILLIAMS

GIRISHK, WITH ITS CRUMBLING, MUD-WALLED CASTLE AND GARDENLIKE SURROUNDINGS, IS A STOP ON A CARAVAN ROUTE ACROSS AFGHANISTAN

This fort town in the south-central part of the railroadless kingdom is blessed with water, fertile fields, and a small garrison to protect them. Caravans passing through often go clear across the country, connecting railheads in India and the Soviet Union at the borders of Afghanistan (Bulletin No. 5).

Deserts Form Dry Belt Around Third of Earth

DESERTS are areas supporting little if any vegetation, animal life, and human population. Generally they are caused by one of two climatic factors: too little rain, or too much cold. Cold deserts are the tundras of Siberia and Alaska and the frigid wastes of polar areas. The dry variety, the only type popularly considered as deserts, spread more widely over the globe. Every continent but Europe has them. (See the Society's World Map.)

One almost continuous band of desert forms a belt of varying width and dryness reaching more than one-third of the distance around the globe. Beginning at Africa's Atlantic coast, it extends east to the Red Sea, then gradually northeast through Asia almost to the Pacific. Several named deserts make up regional portions of this vast aridity.

SAHARA: The name of the world's largest desert means desert in Arabic. As is generally true of deserts, the Sahara's boundaries are not clearly defined, and conventional or arbitrary limits are often disputed. But the Sahara, in the broadest sense, is estimated at no less than 3,500,000 square miles. Thus it is somewhat larger than the United States. It stretches all the way across north Africa, interrupted only by occasional oases and by the green ribbon of the Nile. The Sahara covers almost one-half of the African continent. Countries and colonies all or partly within it are: Morocco, Algeria, Tunisia, Libia, Egypt, Anglo-Egyptian Sudan, French Equatorial Africa, French West Africa, and Rio de Oro.

The Sahara is not a uniform plain of hot, shifting sand dunes. An interior plateau of rocks and mountains rises to 11,201 feet in the Tibesti upland near the border of French Equatorial Africa and Libia. All areas get some rain, usually in sudden downpours. Sometimes light rain evaporates before reaching the ground. The core of the western Sahara and the section called the Libian Desert are the driest. Even there oases are not uncommon. An oasis is simply a place where water is available; most of the desert would be fertile if it could be watered.

Temperatures reach 120 and 130 during the day, but nights are chilly. Frost and snow fall on high areas in winter. The Sahara supports large numbers of Arabs, Moors, Berbers, Tuaregs, Bedouins, Negroes, and Jews.

ARABIAN: Often considered an eastern extension of the Sahara, the Arabian Desert has more rain, more oases, and denser population. Its 1,000,000 square miles support an estimated 10,000,000 inhabitants. There is not a single true river. Countries covered all or in part by the Arabian Desert are Saudi Arabia, Yemen, Aden Protectorate, and Oman. The Rub Al Khali (the empty quarter) has the most extreme desolation in the peninsula, while west of it Yemen is the most favored part. Its mountains catch enough rain to water crops. Mocha coffee developed there. The Persian Gulf coast of the Arabian Desert is rich in oil.

SYRIAN: This northern continuation of the Arabian Desert covers about 300,000 square miles. It stretches from the Dead Sea to the Euphrates River and reaches as far north as Aleppo. Syria, Trans-Jordan, Saudi Arabia, and Iraq are the countries containing it.

KARA KUM: Fingers of desert reach across Iraq, Iran, and Afghanistan

UMI

Chamorros and Caroline Islands natives are left on the island of Saipan.

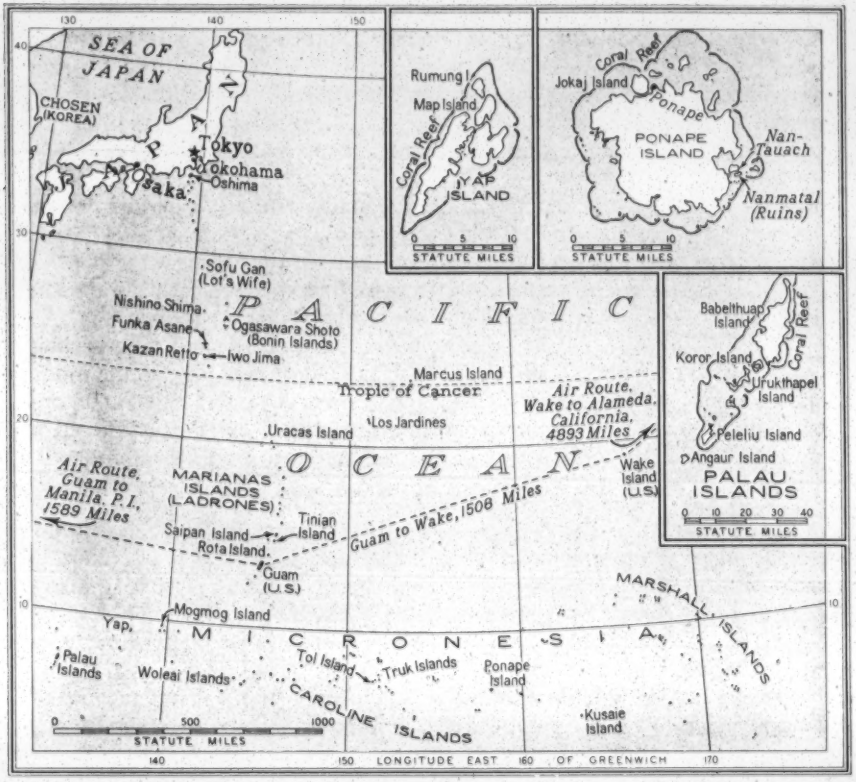
The leading native group, the Chamorros (illustration, cover) are a mixture of Indonesian, Spanish, and Tagalog. Their culture and the style of their buildings were handed down from the Spaniards who came as missionaries to the islands nearly three centuries ago.

Although the islands of Micronesia have long been known, there is very little scientific information about them, partly because Japan for many years barred outsiders. Half the plants of the region have never been classified and named.

The climate is tropical and generally humid. The animal kingdom is chiefly represented by bats, lizards, land snails, and some rats brought in by ships. Sea birds are numerous, however, and the blue lagoons and surrounding ocean are rich in many kinds of fish.

NOTE: Koror and Saipan are shown on the Society's map of the Pacific Ocean and the Bay of Bengal. Write the Society, Washington 6, D. C., for a price list of maps.

See also "American Pathfinders in the Pacific," in the *National Geographic Magazine*, May, 1946*; "Victory's Portrait in the Marianas" (17 color paintings), November, 1945*; "South from Saipan," April, 1945*; "Springboards to Tokyo," October, 1944; and "Treasure Islands of Australasia," June, 1942*. *(Issues marked with an asterisk are included in a special list of Magazines available to teachers in packets of ten for $1.00.)*



DRAWN BY ARTHUR J. HAZES

A PREWAR MAP OF THE PACIFIC WAR MEMORIAL RESEARCH FIELD SHOWS MICRONESIA SPRINKLED DOWN FROM JAPAN AS THOUGH FROM A GIANT PEPPER SHAKER

Bulletin No. 3, November 29, 1948

Lincoln's Gettysburg Address 85 Years Old

FOUR score and five years ago on November 19 at Gettysburg, President Abraham Lincoln made a faulty prediction. He said: "The world will little note, nor long remember, what we say here."

On November 19, 1948, thousands of Americans did note and remember. They assembled at the monument in the Soldiers' National Cemetery, on the site of which Lincoln delivered the immortal Gettysburg Address, to hear speeches, and see the Freedom Train. With its inspiring cargo of historic documents, the train visited the battlefield community for the day.

Two-minute Address Followed One of Two Hours

The event commemorated the cemetery dedication and the Lincoln speech of 85 years ago. That the speech is now inseparable from the heroic deeds of the battlefield is shown in the design of a new three-cent stamp which had its first sale at Gettysburg on the anniversary day. Picturing Lincoln, it quotes "that government of the people, by the people, for the people, shall not perish from the earth."

To Lincoln, Edward Everett, orator of the cemetery dedication, wrote on the following day: "I should be glad if I could flatter myself that I came as near to the central idea of the occasion in two hours as you did in two minutes." But Lincoln's listeners at the time were disappointed because of the shortness of his speech.

The war's end at Appomattox was still 17 months in the future when Lincoln and Everett spoke at Gettysburg four months after the intense fighting there. Historians, however, now generally describe Gettysburg as the war's turning point.

The battle was fought July 1, 2, and 3, 1863. Some 160,000 men descended on the environs of the little town of 2,000 in the fertile, rolling hills of Pennsylvania near the Maryland line. About 88,000 troops from 18 states represented General Meade's Union Army of the Potomac; 75,000 men from 12 states formed General Lee's Army of Northern Virginia. More than 50,000 men were counted as killed, wounded, or missing in the three-day battle.

Markers Tell Battle Story

The first two days of fighting favored the South, but brought the Union forces to strategic hilltop positions along Cemetery Ridge. Then came the Confederate charge of 15,000 men, spearheaded by General Pickett's division, which briefly held Bloody Angle on Cemetery Ridge in the afternoon of the third day of battle. A monument designates this as Highwater Mark, where the tide of Confederacy "swept to its crest, paused, and then receded."

In 1895, the principal battlefield area of about one square mile was taken over by the government as the Gettysburg National Military Park. By that time, 500 monuments, tablets, and markers were in place, erected by states, regimental associations, and other organizations.

In 1913, more than 7,000 military tents were pitched on the battle-

UMI

to the arid plain of the Kara Kum (black sands) which covers nearly all of the Turkmen S.S.R. of the Soviet Union. This desert reaches from the Caspian Sea east to the Amu Darya (river). It covers 100,000 square miles.

KYZYL KUM: This desert adjoins the Kara Kum and extends east and north to the Syr Darya and the Aral Sea. It is about 370 by 220 miles in extent. It covers much of the Uzbek S.S.R. and the southern edge of the Kazakh S.S.R. Some of the most populous, productive, and historic oases in the world—Bukhara, Merv, Samarkand, and Tashkent—lie along its rivers and southern mountain valleys.

In southern Kazakhstan and northern Sinkiang lie three deserts of diminishing size which form the connecting link between the central Asia deserts and the great Gobi. These deserts are: The Peski Muyun Kum and the Peski Ishik Otrau, both in the Kazakh S.S.R., and the Peski Dzosotin Elisun or Peski Kobbe in Chinese Sinkiang. Peski means sand.

GOBI: Gobi means desert in Mongolian. The Gobi proper is estimated at 300,000 square miles, the size of two Montanas. It is sparsely settled by nomad Mongols who graze cattle and sheep on the few areas of grassland. The Gobi lies about a half mile above sea level, covering parts of Inner Mongolia and Outer Mongolia and a bit of China and Manchuria.

In the widest use of the term, the Gobi stretches much farther—from the Pamirs of central Asia to the Khingan Mountains of Manchuria—2,300 miles east and west and 600 miles north and south.

TAKLA MAKAN: This completely uninhabitable basin of the Tarim River is often considered a southwest extension of the Gobi. It covers most of the south part of Chinese Sinkiang. It measures 650 by 250 miles.

In addition to the deserts of the world's great dry belt, there are many isolated examples. The Thar or Indian Desert covers 200,000 square miles in the northwest part of the Indian Peninsula. Australian deserts stretch north and south from coast to coast in west-central Australia. The Kalahari covers 240,000 square miles in southern Africa. The Atacama, north Chile's desert, is one of the richest and possibly the driest.

The "Great American Desert" of early imaginative geographers is now confined to the 25,000 square miles of the Mojave Desert in southern California. Death Valley is a northern finger of the Mojave, and other arid and semiarid portions of the Southwest and Mexico connect with it.

W. BOSSHARD

FEW DESERTS CAN MATCH THE COMPLETE DESOLATION OF SINKIANG'S TAKLA MAKAN

Bulletin No. 4, November 29, 1948

Spiders Fly on Magic Carpets of Gossamer

IF IT had been a gossamer-weaving spider that sat down beside her, Little Miss Muffet probably would have been entranced rather than frightened away. For gossamer, the filmy thread spun by tiny spiders, adds a magical touch of beauty to the world, especially at this season of the year.

Dew-drenched, it spreads in countless cloud-puff coverlets on morning fields of grass, clod, and stubble. Or, borne on the soft air of a mild Indian summer evening, threads of gossamer may combine to form silken scarfs that float hundreds of miles on warm currents.

Flight Without Wings

Cobwebs they are, but mortal man by the light of a big harvest moon needs no more to spur visions of goblins and witches. It was gossamer in the moonlight, scientists explained, that caused a recent mild "invasion" scare in northern California.

Gossamer is the vehicle of wingless flight practiced by spiders of many species through ages when man was earthbound. Newly hatched spiders possess an instinct for flight as the means of dispersing from their overpopulated birthplace in order to survive. Few winged creatures can surpass their flying feats.

Climbing to a high point on a clod or blade of grass, the spiderling spins a thin gossamer strand and feeds it into warm air rising from the ground. Inserting an occasional fluffy crimp in the thread for the breezes to waft, the youngster soon has upward pull enough to carry him off. Flight can be somewhat controlled by hauling in or letting out the strands of silk.

Spider aviators, catching trade winds, reach islands in the ocean several hundred miles from shore. They may travel for days before coming to earth. Charles Darwin, 60 miles from shore in the mouth of the Rio de la Plata more than a century ago, observed that the rigging of the *Beagle* became coated with gossamer in a short space of time. Martin Lister described the spider's ballooning instinct in 1670.

Method Untried by Man

Late October and November find spider aviation at its height. Since flying is their one idea upon leaving the cocoon, the pinpoint creatures take off in large numbers as soon as they sense that air movement is right. When currents aloft throw them together, they end up with a silken carpet floating in the sky.

Although many means of flying have been developed in the 20th century, the method of the spider remains comparatively untried by man. It is the same principle that disperses dandelion and milkweed seed. If humans could fly by means of kites, it would perhaps be comparable to the spider's gossamer flight.

The spider's use of its silk in flight is doubtless the use least generally known. More familiarly, strands are used to weave a web as a snare to catch food (illustration, next page), to form close-knit tents or funnels for

field for a joint 50th anniversary observance by veterans of the Blue and the Gray.

On July 3, 1938, the Eternal Light Peace Memorial, built of Alabama limestone and Maine marble, was dedicated to "Peace Eternal in a Nation United." More than 1,800 veterans attended the 75th anniversary reunion at that time.

Today, the expanding area of the national park covers four square miles of land. It contains 26 miles of paved avenues, some 800 statutes and monuments, and 1,700 tablets and markers. From these, about 650,000 visitors annually learn Gettysburg battle history on the spot.

NOTE: Gettysburg is shown on the Society's map of the Northeastern United States. For additional information, see "The Most Famous Battle Field in America," in the *National Geographic Magazine* for July, 1931.

ORREN R. LOUDEN

"IT IS FOR US THE LIVING . . . TO BE DEDICATED HERE TO THE UNFINISHED TASK . . . THUS FAR SO NOBLY ADVANCED"

This statue of Abraham Lincoln seems to be repeating the Great Emancipator's immortal words. It stands on a corner of the Pennsylvania Memorial, largest monument in Gettysburg National Military Park. Participating in the crucial Civil War battle at Gettysburg, Pennsylvania, were 34,530 Keystone Staters, including George G. Meade, commanding general of the Union forces.

Bulletin No. 5, November 29, 1948

Afghanistan Gradually Discards Isolation

REPORTS from Afghanistan, where the American Legation has been raised to embassy status, indicate that the remote Moslem land is slowly but surely modernizing. Progress is the new watchword in parts of the rugged region which until lately had changed little since the quiet vale of Kabul charmed Baber, founder of India's Mogul dynasty.

In the Texas-sized buffer land between northwest India and the central Asian republics of the Soviet Union, sturdy mountain tribesmen long guarded their independence behind walls of isolation. They wanted to live alone; in their aloofness they earned a description of their country as one which "made haste slowly."

Moslem Customs Stay

A sign at Khyber Pass once warned, "It is absolutely forbidden to cross this border into Afghan territory." It was 1922 before the first United States diplomat visited this country, and respectively 20 and 21 years later when the Kabul and Washington, D. C., legations were opened.

An Afghan ruler of two decades ago was deposed for attempting to change old marriage laws, to ban the Moslem veil, and uproot other customs of this zealously Mohammedan land. A few fanatics, called *ghazis*, have always considered it a good deed to kill non-Moslems.

Today, Afghanistan is a member of the United Nations. The government is hiring American engineers and other experts to aid irrigation, power, and industrial projects. Roads are being improved and railroads planned, though the arrival of the air age has kept Afghanistan on the tiny list of railroadless countries.

The larger cities, led by the capital, Kabul (illustration, next page), now have electricity, a few mechanized factories, new government buildings, telephones, radios, and movie houses featuring American "westerns." Stiff traffic cops wave shiny automobiles to a stop beside camels, donkeys, and carts. Out in the country, truck and bus shelters are replacing many of the old caravan stops.

Making a Living Is Hard

Yet Afghanistan retains feudal flavor. In the movie theaters, special sections are reserved for discreetly veiled women in formless Moslem robes. Under a circling plane, traders dressed in Biblical style urge their heavy-laden pony trains through mud-brick market towns (illustration, inside cover). In crowded, colorful bazaars, gray-bearded letter writers sell their ancient service, while water boys sprinkle down the dust of ages with water from bulging brown goatskins.

For most of Afghanistan's ten million or more people, making a living is still a primitive, hardworking process, conditioned by arid climate and a mountain-crumpled terrain. Fruits, grains, and other crops grow well in fertile valleys and oases, or where irrigation has been extended. But much of the land is in barren, rocky desert, or inaccessible mountains where peaks tower three and four miles high.

UMI

protection, and to form cocoon-like sacs to protect the eggs and the young. Spiders kill pests that harm crops, doing no harm themselves. They are man's guardian in the garden.

Spreading beyond its original meaning, the word gossamer now describes anything extremely light and unsubstantial. Various explanations of the word's origin are given. They include views that it is Middle English *goose summer* (equivalent of Indian summer), and that it is a corruption of the French *gaze à Marie* (gauze of Mary), the cloth of the Virgin's shroud.

NOTE: For additional material on spiders, see "Marvels of Metamorphosis" in the *National Geographic Magazine* for December, 1938; and "Afield with the Spiders," August, 1933.

GEORGE R. KING

FOR THE INSECTS THAT THESE TWIN SPIDER WEBS WILL CATCH, THE SIGN SHOULD BE "DETOUR"

These are orb webs, highest examples of the spider's work. The one at the left is perfect. To make it, the spider first dropped an anchor thread from the corner of the sign to the bottom of the post. Then it spun the radial lines, stepping off the distance each time to make sure they were about the same distance apart. Finally it started near the center, going round and round in ever larger circles, weaving the spiral threads. The spider's three pairs of spinning organs are called spinnerets. It presses these against something to start the flow of liquid silk. Then it moves off, pulling the sticky material through the air, which hardens it. It holds all the spinnerets together for one strong thread or apart for several. The spider oils its legs so it won't get caught in its own web. When an insect becomes entangled, the spider jumps to the spot and throws strong strands around it, then sucks out the body fluids. Then the spider drops the dead husk, repairs the web, and awaits its next victim.

Nomads make up a large share of the population. Tending sheep herds that provide the chief national wealth, they camp in goatskin tents and follow the seasons. Summer finds them seeking green pastures high on the mountain slopes, descending in winter to sheltered valleys.

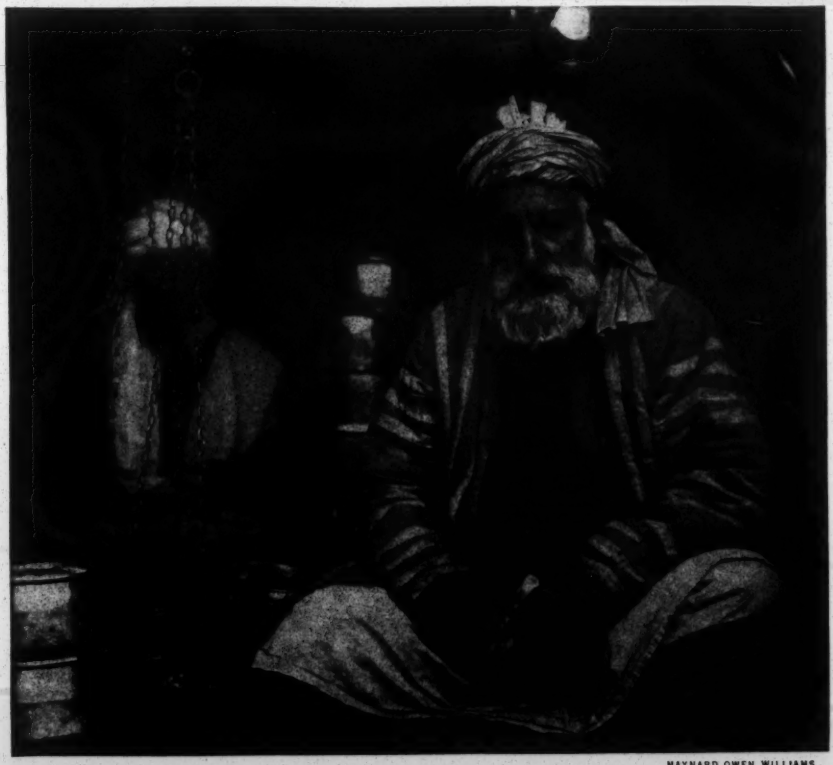
In landlocked Afghanistan, lack of transport has hampered the development of such mineral resources as oil, coal, and copper. Although new highways have been built in recent years and are planned for the future, railroads end abruptly at the Khyber Pass, at Chaman, India, and at Kushka, the southernmost settlement of the Soviet Union.

Though comparatively small, Afghanistan stretches far enough east and west to touch both Iran (Persia) and China, thus connecting two ancient centers of culture.

NOTE: Afghanistan is shown on the Society's map of Asia and Adjacent Areas.

For further information, see "Back to Afghanistan," in the *National Geographic Magazine* for October, 1946*; and "Afghanistan Makes Haste Slowly," December, 1933.

See also, in the GEOGRAPHIC SCHOOL BULLETINS, January 13, 1947, "American Teacher Bicycles Afghan Trail"; and "Kabul, Afghanistan Capital, Feared Foreigners, Fought Progress," March 5, 1945.



MAYNARD OWEN WILLIAMS

A WELL-GROOMED AFGHAN MERCHANT TOYS WITH A STRING OF PRAYER BEADS

Sitting on a cushion in his open-air shop, this Kabul coppersmith displays an air of success and well-being as he waits for customers. He represents Afghanistan's Aryan type, with facial features similar to those seen in Occidental nations.